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Impediments to Information and Knowledge Sharing Within Policing: A Study of Three Canadian Policing Organizations

Douglas Edward Abrahamson[1,2] and Jane Goodman-Delahunty[2]

Abstract

Information sharing is the lifeblood of policing, yet information/knowledge sharing within and across organizations remains problematic. This article elaborated on previous research on organizational information culture and its impact on information use outcomes in policing by examining perceived impediments to information sharing of 134 officers in three Canadian police organizations. Inductive qualitative analysis of an open-ended question revealed seven mutually exclusive impediment themes: processes/technology, individual unwillingness, organizational unwillingness, workload/overload, location/structure, leadership, and risk management. When viewed from the knowledge management infrastructure perspective, organizational structure was the single most common impediment identified, followed closely by organizational culture. Each organization had unique constellations of information sharing impediments. Recommendations for policy and practice are discussed.

Keywords

police, information sharing, impediments, culture, infrastructure

Information and knowledge are literally the lifeblood of policing (Gottschalk, 2010; Ratcliffe, 2012), yet maladaptive information behaviors, values, and cultures along with ineffective structures, technologies, policies, and practices within policing continue to impede information and knowledge sharing within and across police units and organizations in North America. Support for this statement, from the American perspective, is illustrated by a recent review into the 9/11 terrorist attacks in the United States by Best Jr. (2011). Within his report, Best Jr. suggested that the paradox of sharing secret information and risk management as well as disparate information cultures, technologies, and policies blinded law enforcement and intelligence agencies to "connect the dots" (p. ii). Similarly, Canadian law enforcement and intelligence agencies received scathing critiques for their information and knowledge sharing policy and practice failures, as illustrated by the Bernardo Investigation Review (Campbell, 1996); the Commission of Inquiry into the Bombing of Air India Flight 182 (Government of Canada, 2010); and the Missing Women Commission of Inquiry in British Columbia (Oppal, 2012). Within these three incidents, police were critiqued for their failure to communicate and cooperate across jurisdictions, their deficient knowledge and information support systems and structures, and for personal and organizational values and biases that blocked effective and efficient information and knowledge sharing within and without the police intelligence arena.

The idealized and normative notion of democratic knowledge sharing suggests that information should flow freely within and across all levels of civil society and that every person would have access to the information (Veld, 2010). However, this free flow of information, within the context of contemporary policing, must be grounded within the realities and influence of information and knowledge accessibility, politics, need for information security, values, and organizational context. Whereas much attention in recent years has been focused on the criminal intelligence aspects of information and knowledge sharing in police organizations, the broader and more common day-to-day impediments to information and knowledge sharing within the larger body of rank and file officers have largely been overlooked.

Despite the broadly reported business management tenet that organizational information and knowledge resources are key assets to be exploited to support better organizational decision making, policies and practices, innovation and outcomes, many police organizations do not have explicit knowledge management (KM) strategies and/or persistently

[1]Victoria Police Department, British Columbia, Canada
[2]Charles Sturt University, Manly, New South Wales, Australia

Corresponding Author:
Douglas Edward Abrahamson, Victoria Police Department, 850 Caledonia Ave., Victoria, BC V8T 5J8, Canada.
Email: dabrahamson@shaw.ca

fail to recognize that management of knowledge resources involves factors above and beyond the requisite technological support systems (Chávez, Pendleton, & Bueerman, 2005; Gottschalk, 2008; Seba & Rowley, 2010). This issue is not unique to policing, as public and private sector organizations often ignore organizational structure, process capabilities, culture and/or organizational context factors when implementing KM systems or considering the overall health of their information and knowledge sharing environments (Alavi, Kayworth, & Leidner, 2005; Detlor et al., 2006; Gold, Malhotra, & Segars, 2001). In addition, many police organizations fail to fully explore or understand the underlying information and KM context, structures, and processes, each of which may act either as barriers or enablers to information and knowledge acquisition, organization, control, dissemination, and use within the organization (Ekblom, 2002; Gottschalk, Filstad, Glomseth, & Solli-Saether, 2011).

When examined from a North American policing perspective, such oversights are far from trivial and must be addressed for three important reasons: First, the political, social, economic, and information sharing context in which police organizations operate has become increasingly complex and inter-dependent (Ratcliffe, 2012). At the same time, stakeholders have become more demanding for public sector reforms, which include the need for improved accountability, efficacy, and efficiency (Stone & Travis, 2011; Walsh & Conway, 2011). Second, police organizations are knowledge intensive and rely on a deep and broad information and knowledge base to support organizational administrative, operational, and strategic initiatives (Dean & Gottschalk, 2007). Third, all contemporary North American policing models rely on information and knowledge to feed and support their crime prevention and enforcement innovations and models, including, but not limited to intelligence-led (Ratcliffe, 2012), evidence-based (Haberman & King, 2011), Compstat (Willis, Mastrofski, & Kochel, 2010), problem-oriented, and/or community-based policing models (Braga & Weisburd, 2007). Information and knowledge sharing best practices, as they relate to North American intelligence-led policing and related policing models and as a means to effectively and efficiently manage limited police resources, have strong ties to the British National Intelligence Model (Bureau of Justice Assistance, 2008; Maguire & John, 2006). In 2006, Canada chose to develop and implement a "made-in-Canada" criminal intelligence model, which also had a strong focus on "effective intelligence-led policing by establishing standards for intelligence-related structures, processes and practices" (Criminal Intelligence Service Canada, 2008, p. 1).

Despite the importance of individual police officers in the process of information and knowledge sharing, across all police endeavors, few empirical studies of the effectiveness of information sharing within police organizations have been conducted. Accordingly, little is known about potential barriers that may impede knowledge and information sharing at the individual police officer and organization level.

The aim of the present study was to identify the information sharing impediments within this policing context, to identify potential policy and practice misalignment(s), and to gain a better understanding of the information barriers faced by the rank and file officers so that police leaders will be empowered to take appropriate steps to lower and/or eliminate those barriers in the future. A brief overview of KM practice, theory, and its connection to organizational infrastructures, as they apply to policing policy and practice, serves to highlight areas that may become barriers or enablers to information sharing.

KM

Management and information science studies have documented a continued evolution toward a *knowledge society* where public and private organizations are no longer viewed as merely processing or using information for problem solving but also as creating new information and knowledge in a dynamic process that involves interaction and adaptation to a changing and turbulent environment (Bason, 2010; Nonaka, 1994; Wiig, 1997). Included within this evolution has been the advent of *knowledge management*, whereby knowledge, in explicit and tacit forms, is an organizational resource to be captured, created, transferred, and utilized within that organization (Alavi & Leidner, 2001; Jennex, 2008).

Since the 1990s, organizations have invested significant time, financial, and other resources in KM systems and practices in the hopes of achieving increased performance, innovation, and improved decision making (Davenport & Prusak, 1998; Liebowitz, 2011; Nonaka & Takeuchi, 1995). The outcomes of many of these initiatives within policing have failed to meet organizational expectations as governmental support has been mixed and mere information passing does not constitute collaboration or knowledge creation within this context (Gottschalk, 2007; Hughes & Jackson, 2004).

In addition, a number of academics have challenged the notion that knowledge, or "what we know," can in fact be "captured" or embedded within an information technology (IT) process (Wilson, 2002) or whether it can be "objectified" due to the nature of interpretation and the divergent "world views" of those knowing and those receiving (Butler, 2011). Butler (2011) poignantly noted,

> . . . if information technology is to be utilized to give voice to organizational narratives, then it must be recognized that it will be a conduit for data only. And, because gaps in comprehension will always exist, no matter how sophisticated the technology and its power of representation, IT must enable a dialectic to take place between social actors and the phenomena they wish to understand. (p. 7)

In essence, IT is not the panacea for effective information and knowledge creation and management within policing but merely a system that facilitates the dialectic process between individuals, organizational units, and external partners. The

end goal is to create a system that facilitates the conversion of intelligence into a form that can be operationalized.

Within this individual, organizational, and external dialectic, apparently competing and opposing concepts and positions are brought to light as police leaders and organizations respond to policy and practice issues within their communities. Two broad examples of these include budget constraints *and* increased public expectations (Police Sector Council, 2006) and public *and* private policing (Law Commission of Canada, 2006). Both examples illustrate two competing realities that are at the forefront of contemporary North American policing policy and practice. Therefore, the dialectic process is important as it is a dynamic process that allows the reconciliation of what often appear to be competing and/or polar opposite ideas, concepts, or positions. In their explanation of paradox and its relation to knowledge, Takeuchi and Nonaka (2004) posited that in times of complexity, leading organizations must not only face opposing and paradoxical positions but also embrace a number of these paradoxes at the same time. Furthermore, instead of thinking of opposing concepts and positions as "either or" statements or "this versus that" Takeuchi and Nonaka suggested that mutually inclusive perspectives be taken where concepts such as "control *and* independence" (p. 6), "micro (individual) *and* macro (environment)" (p. 9), and "top-down *and* bottom-up" (p. 9) are considered simultaneously. They provided an explanation of how these opposing concepts are actually inter-dependent, inter-penetrating, and unifying:

> To complicate matters, we need to understand that opposites are actually not really opposites; hence the use of terms such as "what appears to be opposites" or "seemingly opposite" thus far. For one thing, opposites are interdependent, meaning that opposites depend on each other. It wouldn't make sense to talk about darkness if there were no such thing as light. Each member of a polar opposite seems to need the other to make it what it is. Second, opposites are interpenetrating, which means that opposites can be found in each other. There is some light in every darkness, and some darkness in every light. If we look into one thing hard enough, we can find its opposite right there. Third, opposites can turn into the same thing if we take an opposite to its very ultimate extreme and make it absolute. Thus, if we make darkness absolute, we are blind—we can't see anything. And if we make light absolute, we are equally blind and unable to see. (Takeuchi & Nonaka, 2004, p. 9)

Keeping Takeuchi and Nonaka's (2004) explanation of paradox in mind, we can see how paradoxes might present themselves when police leaders try to balance the competing needs of the police organization, the local community, key stakeholders, and individual police officers. Having served more than 30 years in policing and personally observed paradoxes in various policing contexts in that time period, the primary author offers a series of seven paradoxical goals within policing for consideration: secure *and* open, structured *and* flexible, individual *and* group, conformity *and* diversity, innovation *and* stability, certainty *and* risk, and loose *and* connected. Further elaboration on this topic is provided in the Conclusion section of this article.

Underpinning these ostensible contradictions are three KM infrastructures that support the KM process: structural (Hendriks, 2006), technical (Gold et al., 2001), and cultural (Jacobson, 2006). Each of these infrastructures may act either as barrier or enabler to information and knowledge acquisition, organization, control, dissemination, and use within police organizations.

The current study extended previous quantitative findings on organizational information culture and its impact on information use outcomes in three Canadian policing organizations (Abrahamson & Goodman-Delahunty, 2013), by examining the impediments to information and knowledge sharing perceived by 134 sworn officers working in these organizations. This study complements the quantitative study by providing a rich, complex, and multi-dimensional "insider's" and "ground-level" view of the perceived impediments to information and knowledge sharing within policing as identified by the end-users of that information, the officers. By asking an open-ended question about perceived barriers to information sharing, we were able to explore the participant's experiences, values, and behaviors, which would not be evident or available in the aggregated quantitative data.

KM Infrastructures

Where the resource-based theory of an organization recognizes the importance of the behavioral and social context in which organizations operate as resources, capabilities, and competencies (Barney, Ketchen, & Wright, 2011), the knowledge-based theory of the organization builds on that platform by conceptualizing the ability to transfer and utilize knowledge as an organization's greatest asset and competitive advantage (Nonaka, Toyama, & Hirata, 2008; Spender & Grant, 1996). This knowledge transfer and utility within the organization cannot be accomplished without appropriate infrastructures to support the process. The integral nature of these support principles within North American policing was illustrated by quantitative findings showing that information policies, strategies, and systems (structure and technology), and information values, norms, and behaviors of the organization (culture) affected the information use outcomes of problem solving, creating work that is beneficial, and information sharing (Abrahamson & Goodman-Delahunty,2013).

To better understand potential sources of barriers or impediments to information sharing within police organizations, a brief account of the three KM infrastructures, as conceptualized by Gold et al. (2001), is provided, namely, the structural, technical, and cultural components of KM.

KM structures. Organizational KM structures provide the backbone for power, coordination, and control within an organization and essentially serve to guide and coordinate

the tasks and activities of individuals as they work toward a common organizational goal (Liao, Chuang, & To, 2011). These structures, whether at the unit or organizational level, serve to align and coordinate lines of responsibility, authority, communication as well as implement institutional rules, policies, practices, and processes. In addition to the organizational rules and roles that guide individual action, structure also includes the configuration, placement, and physical location of individual organizational units, which "can influence knowledge management processes through shaping patterns and frequencies of communication among organizational members, stipulating locations of decision-making, and affecting efficiency and effectiveness in implementing new ideas" (Zheng, Yang, & McLean, 2010, p. 765).

Therefore, the transfer and utility of knowledge within the organization may be helped or hindered by organizational structures that are in place at any given point in time, thereby affecting, positively or negatively, the desired goals and outcomes of the organization. Within the context of policing, such structures include rank, roles, and the location and coordination of organizational units, divisions, and/or agencies among others. By way of example, a prior study of the impact of information management and information behaviors and values within three Canadian police organizations revealed that the structures and processes associated with information management and information sharing were moderately correlated with the achievement of the information use outcomes (Abrahamson & Goodman-Delahunty, 2013). This correlation can be increased by the presence of more effective structures and processes within the organization. Information processes and structures, however, do not stand alone nor operate in isolation and must be supported by a technical infrastructure.

Technical KM infrastructure. The technical infrastructure provides technical support for rapid knowledge creation, storage and retrieval, transfer, and application within the organization and may include IT systems such as data warehouses, Internets, intranets, knowledge directories, and/or portals (Alavi & Leidner, 2001). This same technology is used to facilitate communication as well as consolidate what otherwise would be fragmented flows of information and knowledge within the organization. Accordingly, the technological structure plays a key role within the KM process (Lee & Choi, 2003; Teece, 1998).

Technology, as it relates to policing, has profoundly shaped policing practice over the past 50 years. It was not that long ago that police officers were given truly "mobile" police radios. Now, with current technologies, including mobile data terminals (MDTs) and powerful local, provincial, and national information databases, communication networks, and KM systems, police organizations constantly create, store, retrieve, transfer, and apply knowledge for the organization's benefit and to improve policy, practice, and performance. The current study explored whether technology, along with two other infrastructures, was seen to facilitate or hinder the information and knowledge sharing process within three municipal law enforcement agencies.

The technological aspect of KM, however, has had its critics. Some described it as a management consulting fad (Wilson, 2002) or as creating a technological dependency (Huysman & de Wit, 2004) that ignores existing work or group needs (Malhotra, 2004). Notwithstanding such criticisms, KM technology support systems continue to be used within the public and private sectors as knowledge transfer remains a goal for many organizations that wish to improve performance within their market and local context. Therefore, the technical infrastructure needs and application must be given careful consideration in relation to the KM needs and goals of each policing organization. This perspective was supported by recent findings indicating that information management, comprised of information policies, strategies, and systems within an organization, was one of five factors that collectively accounted for 41% of the outcome variance in three Canadian policing organizations (Abrahamson & Goodman-Delahunty, 2013).

Organizational culture. Organizational culture has consistently been recognized as a primary factor in the success or failure of information and knowledge sharing within organizations (De Long & Fahey, 2000; Ipe, 2003) and has played a central role within the findings of this study. Simply put, organizational culture is defined as the shared assumptions, beliefs, values (establishing priorities), and norms (establishing appropriate attitudes and behaviors) within an organization (Schein, 2004) and includes the sub-cultures that exist within the various units, sections, or departments within the organization (Hofstede, 1998). Individuals are not only guided by their own sets of values but are also governed by the socially legitimated standards and norms set within the organization. Corporate cultures can be generally classified as either weakly or strongly functional (supportive) or weakly or strongly dysfunctional (not supportive), depending on how clearly the organizational culture is defined, communicated, understood, and managed on a day-to-day basis in relation to the organizational goals (Flamholtz & Randle, 2011).

A supportive culture is one in which employees not only understand and articulate the espoused values and standards of performance but also puts them into action each and every day. By contrast, a dysfunctional culture is one in which organizational values, even though they may be known by employees, are left for personal interpretation and implementation, with little to no "management" or follow-up by leaders within the organization (Flamholtz & Randle, 2011; Schein, 2010). For this reason, leadership is important in "setting the tone" and facilitating the socialization, externalization, combination, and internalization of knowledge and innovation within and across organizations (von Krogh, Nonaka, & Rechsteiner, 2012; Wilson, 1997). Knowledge

and innovation, however, are not organizational assets unless shared and integrated into practice. Not only does a culture of knowledge and innovation sharing have practical implications for policing, it has been recognized as of paramount importance within all aspects of police operations and strategic management (LeBeuf & Paré, 2005; Murphy & McKenna, 2007).

It is critical that organizational leaders not only identify the larger technological, structural, and cultural issues that have supported or impeded the achievement of specific organizational goals, but they must also specifically identify which of these factors has the greatest impact on the organization's ability to achieve its goals. For example, Abrahamson and Goodman-Delahunty (2013) demonstrated that two information management and information behavior and value factors consisting of (a) information management, integrity, and transparency, and (b) information sharing and proactiveness collectively accounted for 71% of the variance in the achievement of specific information use outcomes. By examining the quantitative and qualitative aspects of the information sharing experiences within these three police organizations, a broader and deeper understanding can be gained of the actual and perceived impediments to information sharing and how these impediments affect the achievement of organizational goals and outcomes.

Information Sharing and Use

Human and organizational information use has been viewed from a variety of perspectives within the discipline of information studies. These perspectives include seven information use elements/principles that were synthesized from the broader information studies literature, namely (a) information practices, (b) information search, (c) information processing, (d) information production, (e) the application of information, (f) knowledge construction, and (g) the effects of information use (Kari, 2010). An organization-focused and pragmatic information use perspective was provided by Choo (2006), who stated that an organization uses information "to make sense of change in its environment; to create new knowledge for innovation; and to make decisions about courses of action" (p. 329).

This explanation is particularly important to knowledge intensive organizations such as police agencies, because a nexus exists between an organization's information/KM, information behaviors, values, beliefs, and the organization's information use outcomes and performance (Abrahamson & Goodman-Delahunty, 2013; Choo, Bergeron, Detlor, & Heaton, 2008; Marchand, Kettinger, & Rollins, 2001). Notably, recent research conducted within police organizations identified positive correlations between the information integrity, management, transparency, sharing, and proactiveness constructs and the information use outcomes of problem solving, creating work that is beneficial, and information sharing (Abrahamson & Goodman-Delahunty, 2013). Within the policing organization, these constructs not only affect information use outcomes but also assist the organization in making sense of the changes in the larger environment.

Making Sense of Change in Policing

Policing in the modern era is complex, costly, time-consuming, and pluralistic in nature. Police do not merely enforce the law or maintain the peace within the communities they serve. There is an expectation that they will reduce crime and disorder, reduce fear of crime, solve community issues, and encourage cooperation within the communities (Gallagher, Maguire, Mastrofski, & Reisig, 2001). Adding to this complexity is the recognition that organized crime, technological crime, and terrorism know no boundaries, and these issues are of local concern as well (Murphy, 2007; Sansfaçon, 2006).

It is within this volatile and equivocal environment that organizations and their agents wrestle with the discontinuous nature of reality and attempt to make sense of and manage the gaps between what was once known, where they are now, and an unpredictable future through information and knowledge sharing. The nature of this organizational "sense making" process was aptly described by Dervin (1998):

> Humans, sense making assumes, live in a world of gaps: a reality that changes across time and space and is at least in part "gappy" at a given time-space; a human society filled with difference manifested in madness, culture, personality, inventiveness, tentativeness and capriciousness; a self that is sometimes centered, sometimes muddled, and always becoming. In this view, the sense making and sense unmaking that is knowledge is a verb, always an activity, embedded in time and space, moving from a history toward a horizon, made at the juncture between self and culture, society, organization. (p. 36)

Key within this description is the notion that humans are not always rational, that they live in social environments, are influenced by personality and culture, and that the state of their knowledge is always in flux. Organizations, as human social constructs, also exist within social environments, are rationally intended, embody norms, values and beliefs, and seek and use information to solve problems across time and space as they strive to achieve future goals and outcomes (Thompson, 2007; Weick & Sandelands, 1990). Sense making, whether at the individual or organizational level, allows individuals and organizations to acquire new insights into the problems at hand in new and innovative ways.

Creating New Knowledge for Innovation in Policing

Organizational knowledge creation and innovation is critical to all organizations as it is "a continuous process through which one overcomes the individual boundaries and constraints imposed by information and past learning by acquiring a new context, a new view of the world and new

knowledge" (Nonaka, von Krogh, & Voelpel, 2006, p. 1182). Organizational knowledge creation and innovation within organizations are neither static nor mechanistic processes, but dynamic social activities grounded within the history, relationships, rules, norms, and values of the people within the organization. It is for this very reason that this study was interested in the qualitative responses of participants, as they are indeed grounded in the technical, cultural, and structural history and values of the organization and affect how information is used, whether new knowledge is created, and whether new innovations are nurtured.

The application or mobilization of new knowledge and innovation within organizations is traditionally done for economic, strategic, and operational advantage, which requires making decisions between possible courses of action. In contrast to the traditional private sector need to apply knowledge to enhance competitive advantage, public sector organizations must mobilize new information and knowledge to enhance administrative, operational, and strategic effectiveness and efficiencies to better adapt to the changing external social, political, and economic environments. Without an understanding of the organizational information sharing issues that exist at the individual officer level and become impediments, police leaders will be less effective in reaching organizational goals and outcomes. This study aids organizational leaders by providing richer insights into the information behaviors and values of their officers and how these may positively or negatively affect organizational performance.

Method

Participants

Of the 212 respondents who responded to a larger survey, 134 police officers responded to this research study question. Demographically, participants comprised 84% (n = 113) men and 16% (n = 21) women, 50% (n = 67) of whom were line personnel (Constable), 44% (n = 59) were supervisors (Corporals, Sergeants, or Staff Sergeants), 4% (n = 6) were at command level (Inspector), and two people (1%) reported their rank as "other." Reported education indicated that approximately one half of the respondents (49%) had some college education, 42% had completed a 4-year college or university degree, and a small number of officers (3%) had completed a graduate degree. The remainder (6%) had completed high school/general education development.

Within each of the three rank/role categories, the education levels were reported thusly: Of line personnel, 4% (n = 3) completed high school/general education development, 54% (n = 36) had "some" college, 39% (n = 26) had a 4-year degree, and 3% (n = 2) had a graduate degree. Of supervisors, 8% (n = 5) completed high school/general education development, 49% (n = 29) had "some" college education, 41% (n = 24) had a 4-year college/university degree, and 2% (n = 1) reported a graduate degree. Of the six command personnel, 17% (n = 1) had "some" college education, 67% (n = 4) had a 4-year college/university degree, and 17% (n = 1) reported having a graduate degree.

Materials

This study analyzed responses to an open-ended question contained within a larger survey questionnaire administered to three diverse municipal police agencies in Canada (Abrahamson & Goodman-Delahunty, 2013). The question asked, "In my agency, the greatest impediment(s) to the sharing of valid information and knowledge is/are . . . "

Sampling Procedures

Police Chiefs of four municipal police organizations within Canada were sent letters of introduction, invitations to participate in this study, and research information sheets. Three agencies agreed to participate in the study: one medium-sized independent municipal agency (MED-IND), one medium-sized Royal Canadian Mounted Police (RCMP) municipal police agency (MED-RCMP), and one large-sized independent municipal agency (LRG-IND). All sworn officers within these agencies (n = 1,850) were eligible to participate and received individual email invitations with web-based survey links. Survey completion was voluntary and constrained by the operational needs of each organization within the data collection period. Therefore, participants were self-selecting. Within the 4-week data collection period, a total of 134 valid responses were received with respect to this research question (MED-IND [n = 29], MED-RCMP [n = 29], LRG-IND [n = 76]).

Analysis

Responses were analyzed using inductive qualitative methods (Strauss & Corbin, 1998). This inductive approach allows "research findings to emerge from the frequent, dominant, or significant themes inherent in the raw data, without restraints imposed by structured methodologies" (Thomas, 2006, p. 238). Thus, the developed themes were not only data-driven but were also theoretically *bottom-up* versus *top-down* driven, and presented an "accurate reflection of the entire data set" (Braun & Clarke, 2006, p. 83) while allowing a rich description of the data.

The survey responses were initially close read, re-read, and then open-coded using qualitative data analysis software (QDAS). NVivo 8 software was utilized to code the unstructured textual data and develop and compare emergent themes and concepts between and across demographic groups (Bazeley, 2007).

Very few participants (7%) reported that they were unaware of any impediments to information and knowledge sharing or that no impediments to information sharing existed. Most respondents were aware of information sharing

impediments within their organization and were willing to share their thoughts on this subject. A recursive and iterative approach was used in developing the themed categories. On collapsing all overlapping or otherwise redundant sub-categories, a total of seven impediment themes emerged. Two additional categories were created to encapsulate responses indicating that there were (a) no perceived impediments to information sharing and (b) miscellaneous responses that were either blank, ambiguous, or inappropriate in response to the question. Four responses were excluded from further analyses as they did not fit any of the final categories due to ambiguity in the participants' wording. A multi-coder system was implemented to establish shared interpretative validity (Maxwell, 1992).

Inter-rater reliability. To assess coding reliability, all open-ended responses were dual-coded by two trained raters who identified the theme(s) contained within each response. Cohen's kappa coefficients were calculated for each category. The Kappa coefficients yielded good inter-rater results, with agreement percentages at or above the 90% acceptable level (Miles & Huberman, 1994). All disparities between raters were resolved by follow-up discussions to reach consensus.

Results

Definitions of the seven themes or types of impediments to information sharing that were distinguished, and examples of each, are displayed in Table 1.

Figure 1 displays the rounded aggregated data on seven types of impediments to sharing information and knowledge distinguished by participants across all three Canadian policing agencies. The percentage of the total for each impediment and its ranking relative to the other noted impediments revealed three dominant themes regarding impediments to information and knowledge sharing across the three police agencies: processes-technology (24%), individual unwillingness (21%), and organizational unwillingness (15%).

Collectively, these three impediments accounted for 60% of the barriers to information and knowledge sharing within the three police organizations. Fewer participants mentioned "workload-overload" (12%), "location-structure" (10%), "leadership" (6%), and "risk management" (4%).

A closer inspection of the seven core information and knowledge sharing impediments was conducted within each of the three participant organizations to assess what, if any, differences or similarities were present across organizations. The seven perceived impediment themes were plotted in terms of their frequency, and as an individual organizational value, as shown in Figure 2.

Variability between organizations was most apparent among the five top-ranking impediments. Accordingly, similarities and differences between the three participating police agencies regarding these five impediments are briefly summarized.

Top-Ranked Impediments to Information and Knowledge Sharing

Processes and technology. Overall, "processes-technology," which represents internal and external information sharing processes, systems, policies, and technologies (e.g., information portals, police records information management systems such as PRIME,[1] email) within the organization, was identified by many participants as the greatest single impediment to information sharing across the three police organizations. This barrier was perceived to exist by more than two fifths (43%) of the MED-RCMP participants, more than a quarter of the sworn officers (28%) employed by the LRG-IND agency, and about one in five police (18%) in the MED-IND agency. In the latter agency, this theme was ranked as the second most significant impediment to information sharing, accounting for 16% fewer responses than the impediment characterized by "individual unwillingness" to share information.

When specifying the aspect of process that created the impediment, several participants blamed organizational incentives for individual merit as opposed to teamwork: " . . . a promotional system which embraces singular deeds thereby leading to information hoarding and stealing" (LRG-IND, supervisor). Another police supervisor stated,

> I see this primarily as an issue involving the art of communication. As long as we hire/employ human beings and not machines, we are at the mercy of those who wish to hoard information and not share same. We can establish a myriad of systems to disseminate information/facts, unless the will is there to share it, to ensure it is broadcasted, we will continue to struggle with this. (MED-RCMP, supervisor)

Both comments reflect the often-discussed but often-neglected need to address the social aspect of information sharing and the formal and informal organizational reward systems that exist within organizations creating incentives and disincentives to share information (Bartol & Srivastava, 2002).

Participants from independent and national police agencies suggested that technology policies and systems were the primary impediments: "Our information technology section and their overly restrictive policies" (LRG-IND, supervisor) and "Various systems that do not talk to one another through portals. Various levels of encryption that one agency would follow but not another" (MED-RCMP, supervisor).

Individual unwillingness. The impediment ranked as the second most significant barrier to information sharing was "individual unwillingness," or a reluctance to share due to personal attitudes, values, beliefs, and/or actions. In two of the three organizations, the LRG-IND agency and the MED-RCMP agency, one in five participants perceived this as a problem, but in the MED-IND agency, the frequency was one in three (34%), substantially more than "process-technology."

Table 1. Categories Distinguishing Perceived Impediments to Information Sharing.

Impediment	Definition	Examples
Workload/overload	Shortage of time, work overload, or general inability to deal with the information/work load.	"Workload . . . everyone is too busy"; "lack of time"; "information overload"
Processes and technology	Internal and external information sharing processes, systems, policies, and/or technologies (e.g., police records information management environment [PRIME], email, etc.)	"Our Information Technology section"; "formal channels have not been identified"; "confusion based on who does what . . . top heavy in bureaucracy"; "legislative restrictions"; "various systems that do not talk to one another through portals"; "policies and guidelines within different agencies"
Leadership	Lack of direction, feedback, or support by the senior management or executive management team about information and knowledge sharing.	"Equivalent to urinating in dark pants. You would get a warm feeling inside but no one notices"; "lack of organization direction"
Individual unwillingness	Individual unwillingness to share information/ knowledge due to personal attitudes, values, beliefs or actions.	"Control and egos"; "personal gain"
Organizational unwillingness	Unit, department, or agency level unwillingness to share information with other units or departments internally and/or externally.	"Competition between sections/agencies"; "fragmented policing style in this region"; "unwilling to share because they are competitive"; "empire building and egos, by specialty units"; "competition between sections"; "silo like thinking of specialty units"
Physical location/structure	The way the organization or policing generally is structured or located in the area or region.	"Compartmentalization nature of policing"; "too large . . . no access to other units"; " the size of our community"
Risk management	Investigative or organizational risk management.	"May jeopardize the case"; "need to maintain integrity of sometimes sensitive information"; "liability"
None	No perceived or known barrier.	"There isn't"; "none"; "can't think of one"
Miscellaneous	Incomplete, non-codable, or unintelligible responses.	"So that I don't get chewed out by an Officer"

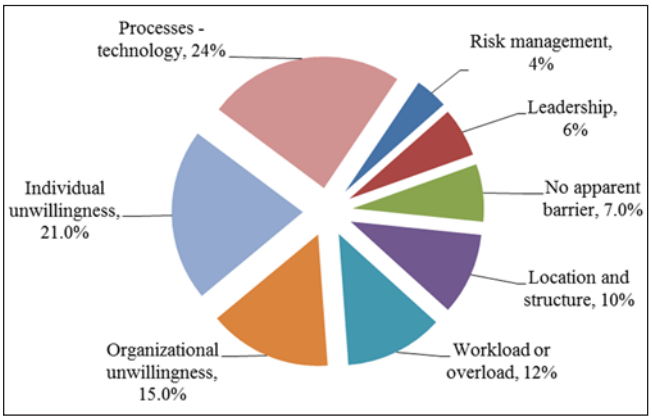

Figure 1. Perceived impediments to information and knowledge sharing.

Comments made by several officers captured the larger issue: " . . . empire building can protect and help many officers achieve their personal goals" (MED-IND, line officer); "Individuals keeping information to themselves to act upon themselves" (MED-IND, line officer); " . . . to beat out everyone else" (LRG-IND, line officer); and "Holding information gives me the 'hero' factor. Meaning I will be the officer writing the warrant and getting the credit" (LRG-IND, line officer). These responses reflected rational self-interest, marked by an emphasis on personal goals versus collective priorities and interests, and influenced by their agency's unique social and organizational context. Such individual values and behaviors are not conducive to information and knowledge sharing.

The issue of real or perceived competition between individuals was further illustrated by the comments by several officers: " . . . internal competition and information hoarding" (MED-IND, line officer), "Officer hoarding of information and empire building" (LRG-IND, supervisor), and "The individual silos of information and competition between units" (MED-IND, command officer).

The degree to which this type of behavior was condoned and/or rewarded within these organizations was of interest, because individual unwillingness behaviors are contrary to the fundamental policing goals of information sharing, interoperability, and achievement of organizational goals. Logic dictates that at some point, individual unwillingness will become organizational unwillingness if left unchecked, because organizational culture is essentially a shared view

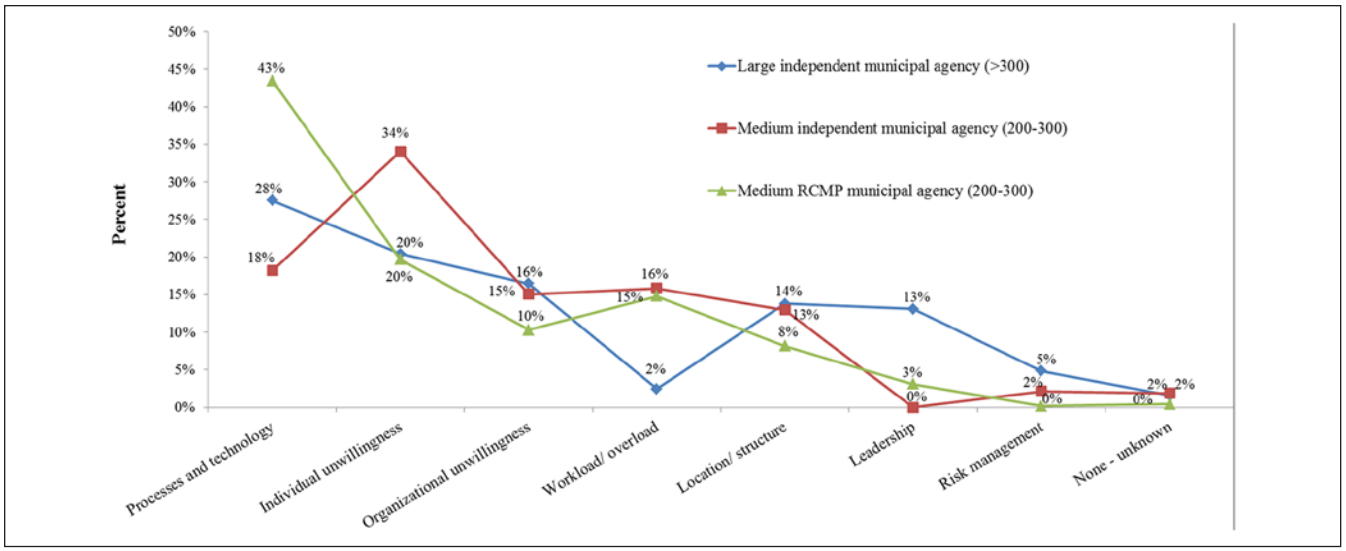

Figure 2. Perceived impediments to information sharing by police agency.

" . . . to be taught to new members as the correct way to perceive, think, and feel . . . " (Schein, 2010).

Organizational unwillingness. The third impediment to sharing information most frequently identified was "organizational unwillingness," manifested by a unit, department, or agency level unwillingness to share information and knowledge with other units or departments, internally and/or externally. Results showed that this impediment was perceived as more common in the LRG-IND agency (16%) and the MED-IND agency (15%) than in the MED-RCMP agency (10%).

Competition within a unit and/or department for notoriety, resources, or public recognition was shown in several comments: "The individual silos of information and competition between units" (MED-IND, command officer); "Boundaries between outside agencies . . . unwilling to share information because they are competitive and seeking glory within public perception" (MED-IND, line officer); and "There is a sense that knowledge is power, and many do not want to relinquish power. They are not special if others have the info. From the executive level, there is a sense of 'we can't share info with the membership, the minions would not understand'" (LRG-IND, line officer).

A recent study conducted by the RCMP examined police information sharing practices in Canada. Findings indicated that police relied heavily on personal interactions, relationships, and trust-based information transactions when dealing with sensitive information; that police trusted, overall, the security of the technology systems that are in place; that outside access to individual agency information databanks was very limited; and that a large portion of the sharing was built on "personal initiative or judgement" and not on purely "secure and systemic" information sharing protocols (LeBeuf & Paré, 2005, p. 23). The foregoing comments from participants in the current study generally supported these findings, particularly those statements that related to limited access to outside agency databanks, information sharing was based on trust, and that systemic information sharing protocols are required.

Workload-information overload. The role that IT plays in the facilitation of the storage, retrieval, and dissemination of information and knowledge within the organization is an important one. However, one of the unintended consequences of that automation and re-arrangement of information flows is an overabundance of information and a need for the individual recipient to sort out what is important, what can wait, and what can be ignored. This overabundance of information, coupled with the need to sort and evaluate each new item of information for relevancy, creates an increased workload and/or overload for end-users of this automation. A fourth impediment identified by participants was "workload-information overload." This impediment was perceived as a barrier to information sharing to a similar and more extensive degree by the MED-IND agency (16%) and the MED-RCMP agency (15%), whereas workload-information overload was not perceived as a significant barrier to information and knowledge sharing in the LRG-IND agency (2%). Supervisors and line officers alike experienced this pressure: " . . . time constraints, I don't have time in the day in order to properly disseminate all the information" (RCMP, supervisor); " . . . sharing information or knowledge often results in more work" (RCMP, supervisor); " . . . information overload through too many mediums" (LRG-IND, supervisor); and "Time is a large factor, people are too busy. Motivation is another due to workloads and limited time" (MED-IND, line officer). All of these officers felt overloaded by information and compelled to "do something" with information that they acquired, whether it was to assess its worth, disseminate it, record it, and/or take action.

The foregoing examples disclosed an issue of absorptive capacity at the individual and collective organizational levels. Absorptive capacity was defined by Cohen and Levinthal (1990) as the ability to fully value, assimilate, and apply new knowledge. Unless sufficient time and/or resources are dedicated to mitigating information and work overload, much information will be lost, overlooked, and/or ignored to the detriment of the organization and the achievement of target goals and outcomes. More importantly, the increased workload caused by the massive influx of information defeats the information sharing goal by creating disincentives for officers to use and contribute to the information systems and information flow. Because of this potential for backlash, it is important that organizations develop appropriate structures that facilitate and do not hinder the flow of communication between individuals, groups, units, and/or organizations.

Location-structure. The fifth impediment mentioned by a substantial proportion of participants was "location-structure," which related to the way the organization is internally structured or generally located in the applicable policing area or region. This was perceived as more of an issue by participants from the LRG-IND agency (14%) and the MED-IND agency (13%), whereas fewer participants in the MED-RCMP agency (8%) cited this factor as an impediment. The following comments illustrated this information sharing impediment succinctly: "The compartmentalization nature of policing" (MED-IND, line officer); "Too large a service and too spread out throughout the city to spread the information throughout. Too many specialty units that are too specialized and retain their information because they are segregated from the rest of the service" (LRG-IND, line officer); and " . . . too many different police agencies in a very small geographic area" (MED-IND, supervisor).

Each of the foregoing comments identified the presence of information "silos," which may be vertical within or horizontal between units, sections, or agencies. This lack of communication and information sharing within and across organizations is aggravated by the location and structure of organizational units, different roles and responsibilities, accountabilities, budgets, and boundaries. Traditional bureaucratically focused hierarchies do not always lend themselves to substantive information sharing due to policies and boundaries, however, there has been a greater recognition of the need for and value of increased informal contact with peers and colleagues and the development of collaborative network structures in the transferring of knowledge within and across organizations (Agranoff & McGuire, 2004). A key role of leaders and managers in creating opportunities for knowledge sharing and integration within and across organizations is to eliminate or reduce barriers that produce physical or psychological distance (Argote, McEvily, & Reagans, 2003).

Two additional impediments to information and knowledge sharing that emerged in the responses from participants were "leadership" (lack thereof) and "risk management."

Leadership. Leadership within organizations, positively or negatively, drives the values, behaviors, commitment, and cooperation of employees toward the achievement of a common goal. Relative to the other two agencies, the LRG-IND agency stood out as more than 1 in 10 (13%) of the participants perceived that a lack of direction, feedback, or support by the senior management or executive management team was problematic. Illustrative of the perception that the lack of leadership or management support were impediments were these responses by officers: "Management failure to take appropriate action unless the issue is topical, sexy or in their individual political interest" (LRG-IND, supervisor); " . . . lack of organization and direction. Confusion based on who does what and what goes where due to a system top heavy in bureaucracy" (RCMP, supervisor); and "lack of recognition" (LRG-IND, supervisor). In each of these instances, the impediments to information and knowledge sharing can be significantly addressed through the leadership function, whether at the supervisory or at the senior management level. In comparison, participants employed by the MED-RCMP agency and the MED-IND agency perceived that leadership issues with respect to information and knowledge sharing were minimal or non-existent (3% and 0%, respectively).

Risk management. The final impediment identified was "risk management," suggesting that information and knowledge sharing was hindered by the overarching need for organizational or investigative level information and knowledge risk management. This issue was slightly more predominant within the LRG-IND agency (5%) than the MED-IND agency (2%) and was perceived as a non-issue within the MED-RCMP agency (0%).

Two issues of significance to policing were encompassed by this theme: maintaining investigative integrity and limiting agency liability in relation to lawsuits. Although there were comparatively few responses within this category, the responses reflected these concerns: "loose lips sink ships, if you have an important investigation, only want the investigating officers to know in order to complete invest without hiccups" (LRG-IND, line officer); "may jeopardize a case" (LRG-IND, line officer); and " . . . fear that the information may get in the wrong hands" (LRG-IND, supervisor). Police must, for legal and operational reasons, protect sensitive investigative information and data from being inappropriately collected, accessed, disclosed, copied, or destroyed. It is within this legal and operational framework that police must carefully consider, develop, and/or comply with data sharing protocols to effectively work within the community-policing, intelligence-led, problem-oriented, or Compstat-based policing models.

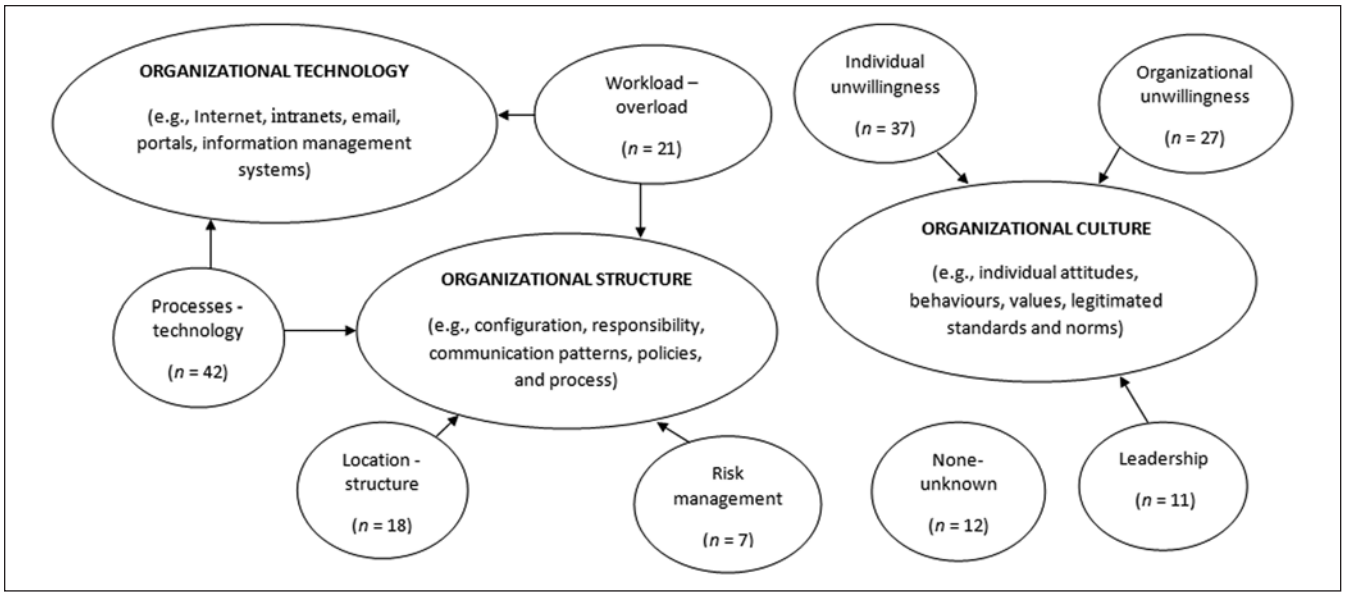

Figure 3. Relationship between impediments and organizational infrastructure.

Within this policing context, it was unsurprising that this theme emerged, but what was surprising was how infrequently this issue was identified as an impediment to information and knowledge sharing within these three agencies, possibly because this issue has been adequately addressed through each of the agency's policies, procedures, and culture.

Connecting Impediments to KM Infrastructures

To conceptualize and illustrate the connection between the seven perceived information and knowledge impediments and the three major organizational KM infrastructures, a diagram was created using NVivo 8 software analysis. The three organizational KM structures of technology, structure, and culture are depicted in Figure 3.

This diagram revealed a clear pattern in these data indicating, overall, that in this sample, the perceived impediments to sharing information and knowledge fell well-within the KM technical, cultural, and structural infrastructure components of the three participating organizations. Some overlap was observed on issues that had a technical and a structural component (e.g., email overload). Consideration of the themes in light of these three infrastructures identified that although "processes-technology" was rated overall as the single highest ranking impediment to sharing across the three organizations (Figure 1), the three most substantial infrastructure impediments to information sharing were "organizational structure" (39%; $n = 88$) followed by "organizational culture" (33%; $n = 75$) and "processes-technology" (28%; $n = 63$).

Discussion

Similarities Between KM in Policing and Other Organizations

A recent study of obstacles to KM and information sharing yielded a ranked list of the top 10 organizational impediments (Croteau & Dfouni, 2008). Although the rankings differed, six of the seven impediments identified within the current study appeared on that list, namely, processes and technology, individual unwillingness, organizational unwillingness, workload-overload, location and structure, and lack of leadership. A comparison of the findings is summarized in Table 2.

This corroboration provided further validation of outcomes of the thematic coding conducted in this study and that there are commonalities between non-policing agencies and police agency/organizations on this issue.

Organizational Context and Impact on Information Behavior

Analysis of the perceived impediments to information and knowledge sharing at the organizational level (Figure 2) revealed unique differences between the three Canadian policing agencies in terms of the magnitude and rankings of the impediments. These organizational differences underscored the importance of context as a moderating factor when examining extant KM practices within organizations. For example, in their review of organizational information environments, Detlor et al. (2006) suggested that an organization's technology systems, politics, and culture

Table 2. Information Sharing Impediments in Policing Versus Private Sector Organizations.

Rank	Impediments in policing	Rank	Impediments in the private sector[a]
1	Processes and technology	1	Organizational culture
2	Individual unwillingness	2	Lack of time
3	Organizational unwillingness	3	Information/communication technology
4	Workload-overload	4	Lack of incentive (reward) system
5	Location and structure	5	Lack of senior management support
6	Leadership	6	Organizational structure
7	Risk management	7	Staff turnover
		8	Physical layout of work spaces
		9	Non-standardized processes
		10	Emphasis on individual rather than team

> . . . constrain and shape the degree to which people in organizations can access, create, share, find, browse, create and use information. That is, an organization's information environment has a direct effect on both employee and organizational information behavior. (p. 119)

This impact of culture on organizational context was echoed by De Long and Fahey (2000):

> By defining the context for interaction, culture determines how all types of knowledge will be used in a particular situation. It does this primarily by dictating the norms—the rules, expectations, and penalties—that govern social interactions between individuals and groups, and by shaping people's perceptions of their range of options acceptable to the organization. (p. 120)

The findings in the current study demonstrated how variations in organizational culture, structure, and technology can affect the successful integration of information and knowledge sharing within the three police organizations. These findings were further substantiated in quantitative analyses of additional data gathered regarding these organizations (Abrahamson & Goodman-Delahunty,2013) demonstrating that information quality control and proactive collaboration accounted for 71% of the variance in a police organization's ability to attain specific information use outcomes.

Limitations of the Study

This research highlighted important organizational information and knowledge sharing issues and impediments within three police organizations. However, these perceptions were not necessarily representative of the larger police population due to sample size and the tactical versus strategic focus of the research question. Despite the limited samples, remarkable consistencies and consensus emerged across these three organizations with respect to the nature of the perceived impediments to information and knowledge sharing and the relative frequency or importance of each of these impediments (Figure 2). These outcomes indicated diffuse informant reliability. Follow-up studies, conducted at the tactical and strategic levels of the organization that include civilian and sworn police personnel and intelligence specialists, will be required to corroborate or otherwise validate the perceptions reported in this study by rank and file officers within three Canadian police organization.

Policy and Practice Implications

This study isolated some of the information and knowledge sharing barriers facing North American police organizations at this point in their history and provided insights into the sometimes fickle foundation on which all contemporary policing is based: information and knowledge sharing. The rank and file groups sampled form the bulk of personnel in every police organization and, therefore, exert a direct and indirect influence on all operations within those organizations and the achievement of any and all goals and outcomes within the organization. In light of recent public sector reforms to improve accountability, efficiency, and effectiveness, it is surprising that little time has been devoted to understanding this important, relevant, and influential group in terms of their ability to support or impede organizational decisions, actions, and outcomes through information and knowledge sharing.

Singularly, the three most significant discrete impediments to information and knowledge sharing within all three police organizations were processes and technology, individual unwillingness, and organizational unwillingness. Collectively, when specific impediments identified were grouped within their associated organizational KM infrastructures, the relative order of the issues changed. Most perceived impediments were aspects of organizational structure and organizational culture, not processes and technology.

Within the core information and knowledge sharing impediments, a number of critical sub-themes emerged that have implications for police policy and practice. Specifically, these sub-themes identified negative consequences of information silos, information hoarding, internal/external competition, personal versus collective goals, lack of absorptive

Table 3. Practical Implications of Impediments to Sharing.

Impediments to sharing	Practical implications for organization(s)
Processes and technology	Instead of facilitating the timely and effective capture, storage, and use of information, these systems and processes inhibit information flow, create disincentives for officer to contribute to and use database(s)
Individual unwillingness Organizational unwillingness Information silos Information hoarding Internal/external competition Personal versus collective attitude	Information and knowledge flows stagnate, effective decision making and operational capacity is reduced due to lack of timely and relevant information, organizational learning and innovation is disrupted, duplication of effort is created due to lack of awareness, organizational performance is reduced, resentment and animosity are created within and across organization(s)
Lack of absorptive capacity	Information will be briefly scanned (not fully considered), ignored, deleted, or filed for expediency, decision-making capabilities and ability to focus on critical elements will be reduced, creating potential risk management issues for organization due to missed sharing/application of information or knowledge
Lack of incentives	No impetus for individual and/or organization to change negative information sharing behaviors
Presence of disincentives	Individuals and/or units are rewarded for counter-productive information sharing behaviors (e.g., promotion)
Lack of trust	Relevant and crucial information will be retained in-house, negatively affecting operations and investigations, duplication of effort is created due to lack of information awareness

capacity, lack of incentives, existence of disincentives, and lack of trust within and/or across units, sections, and agencies. The practical implications of these issues on police organizations cannot be underestimated. Table 3 itemizes the organizational consequences of the presence of these impediments.

In addition, no matter which individual model or combination of policing models each of the three participating police agencies may ascribe (e.g., community-policing, problem-oriented policing, intelligence-led policing, evidence-based policing, reactive and/or proactive policing), each of the impediments identified above conflict directly or indirectly with contemporary police models either culturally, technically, and/or structurally. For instance, a description of the community policing partnership element as provided by the Community Oriented Policing Services (COPS; 2009) states that,

> Community policing, recognizing that police rarely can solve public safety problems alone, encourages interactive partnerships with relevant stakeholders. The range of potential partners is large and these partnerships can be used to accomplish the two interrelated goals of developing solutions to problems through collaborative problem solving and improving public trust. (p. 5)

Using the impediments listed in Table 3 as a point of departure, we see that the "interactive partnerships," "collaborative problem-solving," and "improving public trust" elements of community policing cannot be truly realized within a policing environment that is characterized by internal processes that impede information sharing, individual or organizational unwillingness to share information or knowledge, or lack of trust among others. Similarly, the Intelligence-led policing model would be hampered by these same information and knowledge sharing impediments.

The Intelligence-led policing model has developed significantly over the past decade and is now conceptualized as an integral part of the community-oriented policing and problem-solving process, as was noted in a U.S. Department of Justice report on intelligence-led policing:

> Intelligence-led policing is a collaborative enterprise based on improved intelligence operations and community-oriented policing and problem solving, which the field has considered beneficial for many considered beneficial for many years. To implement intelligence-led policing, police organizations need to re-evaluate their current policies and protocols. Intelligence must be incorporated into the planning process to reflect community problems and issues. Information sharing must become a policy, not an informal practice. (Peterson, 2005, p. vii)

Once again, using Table 3 as reference, we see that any or all of the negative information and knowledge sharing behaviors, values, and processes described by the sworn officers within the three participating agencies would inhibit police organizations' ability to effectively implement the intelligence-led policing model. At the core of the intelligence-led policing model is "collaboration" and "information sharing." It is within this context that "information silos," poorly designed "processes and technology," and/or "lack of absorptive capacity," for example, fail to philosophically or practically support the intelligence-led policing model.

A review of the responses of the sworn officers from each of the three policing organizations revealed that police

organizations, not unlike organizations in general, are highly complex and adaptive social systems that can become maladaptive and dysfunctional, if allowed, through lack of governance, management, and effective learning (Andreadis, 2009; Matthews, Ryan, & Williams, 2011; Van Fleet & Griffin, 2006). Many of the issues identified by the participants in this study are indeed rooted in lack of governance/leadership, management, and/or effective learning. For the sake of illustration, only a few of the many available examples are cited: processes and technology (lack of leadership and management), individual unwillingness (lack of leadership, management, effective learning), presence of disincentives (lack of leadership, management, learning), and lack of trust (lack of leadership, management, learning). Despite the presence of a number of dysfunctional or otherwise maladaptive behaviors within these three police organizations, these issues are not irreconcilable. Therefore, possible avenues for policy and practice improvement are provided.

Conclusion

Each of the impediments identified represents an opportunity for each organization to review and reflect on its current information/knowledge sharing policies, practices, as well as the culture and context in which these issues arose. Although there is no prescriptive answer to solve all of the information/sharing dilemmas within organizations, a number of options are available to mitigate the impediments by improving coordination mechanisms and the context in which sharing occurs. These options include, but are not limited to, improve organizational identity and connectedness (Kogut & Zander, 1996), align organizational culture with information and knowledge sharing goals and needs (De Long & Fahey, 2000), develop information and knowledge sharing values (Nonaka, 1994), create incentives for information and knowledge sharing (Hung, Durcikova, Lai, & Lin, 2011), promote boundary spanning (Tushman & Scanlan, 1981), control information overload (Savolainen, 2007), and improve levels of trust within and across units, sections, and departments (Chowdhury, 2005; Willem & Buelens, 2007). Such remediation efforts, however, fail to address one last issue: paradoxes.

Earlier in our discussion of dialectics and its relation to organizational learning, we proffered seven paradoxes: secure *and* open, structured *and* flexible, individual *and* group, conformity *and* diversity, innovation *and* stability, certainty *and* risk, and loose *and* connected. Each of these are germane to information and knowledge sharing within North American policing as they represent potential sticking points for polarized debate on issues that are actually interdependent and inter-penetrating (Takeuchi & Nonaka, 2004). Simplifying the dialectic stages of thesis, antithesis, and synthesis, each of the paradoxes presented essentially create tensions between the two apparently opposing positions, which would necessitate discussion and debate within the respective police organization. This eventual debate would create a dynamic that incorporates aspects of the thesis (the first idea or position) and the antithesis (the second idea or position), thus forming the synthesis or resolution, which reveal themselves as new perspectives, patterns, attitudes, or structures. This synthesis process is a learning process. Thus, the paradox of secure *and* open suggests that within the thesis of secure and the antithesis of open, there is room for synthesis, where aspects of both concepts are present while yet creating an opportunity for a new perspective, attitude, or structure. The same is true for each of the six other paradoxes.

The foregoing insights into the information and knowledge sharing barriers faced by the rank and file officers within the participating agencies and the concepts of dialectics and paradox will enable police leaders to better understand the needs of their respective organizations and officers, and better appreciate that information and knowledge sharing cannot simply be accomplished through technology alone. A more reflective, systematic, and engaged KM and use approach that recognizes the linkage between the technical, cultural, and structural infrastructures must be undertaken so that police organizations may achieve the goals placed before them.

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1. PRIME refers to the British Columbia province-wide shared Police Records Information Management Environment.

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Author Biographies

Douglas Edward Abrahamson, MBA, DPP is a police officer with the Victoria Police Department in British Columbia, Canada, and a Charles Sturt University - Australian Graduate School of Policing (Manly, NSW) public policy doctoral graduate. He specializes in police management and operations auditing and research interests include organizational performance, accountability, risk management, and the application of evidence-based policy and practice within policing. He can be contacted at: dabrahamson@shaw.ca.

Jane Goodman-Delahunty, JD, PhD, is a Research Professor at Charles Sturt University Manly Campus, Australia. Trained in law and experimental psychology, her expertise is the application of empirical methods to inform legal practice and policy. Her current research is funded by the Australian Research Council, the Australian Institute of Criminology, the US Federal Bureau of Investigation and the NSW Police Force. She is President of the Australia and New Zealand Association of Psychiatry, Psychology and Law, a past President of the American Psychology Law Society, and former Editor of Psychology, Public Policy and Law.